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416/965-6361

Frost Building
Queen's Park
Toronto Ontario

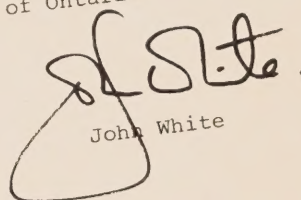
June 12, 1974

The Government of Ontario, in establishing the Niagara Escarpment Commission, recognized that uncontrolled, ill-planned and poorly directed efforts in the field of development threaten the quality of human life. Yet, in far too many places, there is little more than token recognition of the problem.

The Niagara Escarpment Planning and Development Act combines unprecedented provisions for effective, flexible controls with equally unprecedented provisions for democratic discussion, representation and action.

The Niagara Escarpment Commission will have the responsibility for taking action in the Escarpment area through a carefully designed program of development control: a program new to this continent. A master plan, to be completed within three years, will evolve through a consultative process involving individuals, groups and governments.

I am convinced that with proper planning, sound administrative practices and a forthright land policy, the Niagara Escarpment can be preserved. This unique tract of nature is a heritage to be maintained for the people of Ontario.


John White



FORMULA FOR THE FUTURE: PLANNING

The need for a comprehensive approach to land use planning problems is becoming increasingly apparent as the population becomes more and more concentrated into a relatively small number of rapidly expanding urban centres.

Higher population densities are soon translated into an appetite for goods and services which can only be met by drawing upon the resources of the region and beyond.

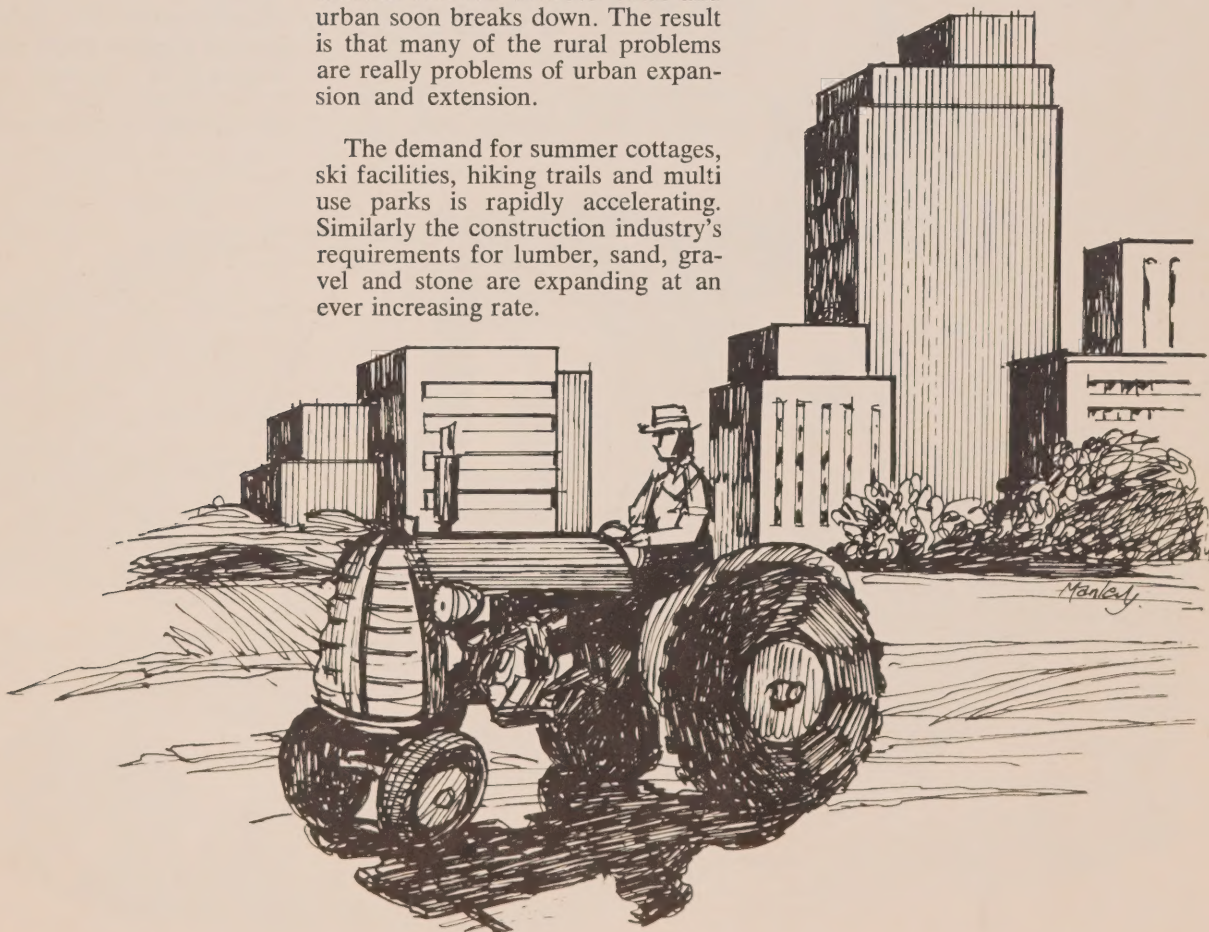
Under these conditions the traditional division between rural and urban soon breaks down. The result is that many of the rural problems are really problems of urban expansion and extension.

The demand for summer cottages, ski facilities, hiking trails and multi use parks is rapidly accelerating. Similarly the construction industry's requirements for lumber, sand, gravel and stone are expanding at an ever increasing rate.

More recently the Country Estate has become quite popular reflecting rising urban affluence and improved transportation facilities.

All these demands originate with the urban dwellers and yet, by and large they must all be satisfied in locations far removed from the urban boundaries.

Moreover these demands, so different in their nature and long term effects, are often exerted in the same



SCENIC

AREA

small area or even the same plot of land.

The idyllic wooded setting with grassy clearings, waterfalls and swimming hole may indeed make an excellent park. It would no doubt also make an excellent rural estate or summer cottage subdivision, or if overlying commercially viable deposits, a first rate sand or gravel operation. Which should it be?

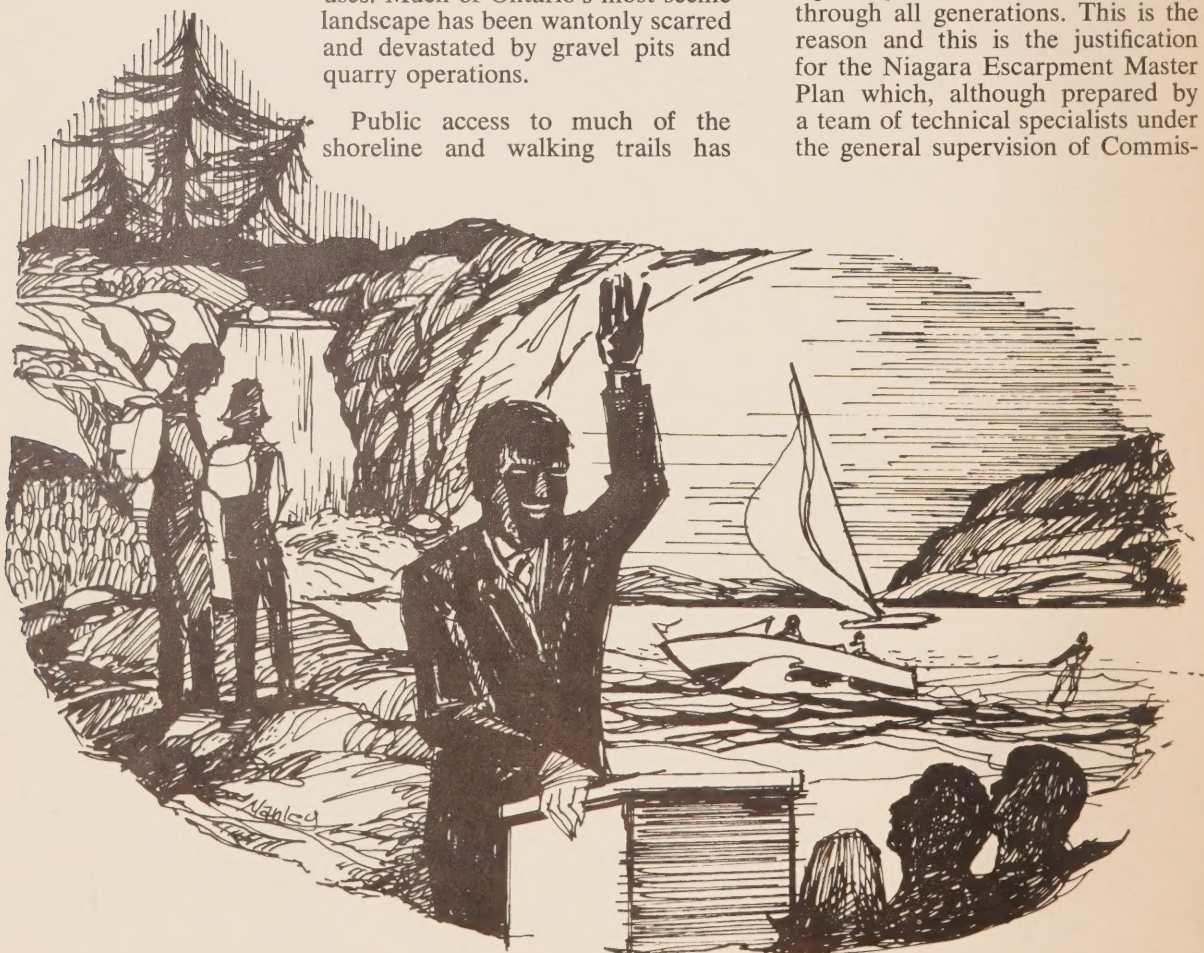
Until quite recently the answer has been found in the Market Place. The most viable use was the most profitable use.

As a result the last decade has seen a tremendous reduction in productive farm acreage, lost, in many instances forever, to urban oriented uses. Much of Ontario's most scenic landscape has been wantonly scarred and devastated by gravel pits and quarry operations.

Public access to much of the shoreline and walking trails has

been frustrated by the exercise of private property rights. It has now become clear to all levels of the Government that the best use of land is not always its commercial exploitation for short term economic gain; that there is indeed a very real and very tangible value to a pure water supply and clean air, and that there is a social obligation to pass on to our children the natural heritage that was handed down to us.

This is the challenge and the well being of future generations depends on our ability to meet it, not in ten, twenty or fifty years but now. The Niagara Escarpment then is a symbol not only of Ontario's unique heritage, but of its determination to use its land resource wisely and equitably to serve all of society through all generations. This is the reason and this is the justification for the Niagara Escarpment Master Plan which, although prepared by a team of technical specialists under the general supervision of Commis-



PLAN



sion Members, will strongly reflect the desires of the public at large as determined through an extensive programme of public participation. Because the terms of reference are so wide in scope, there is an unprecedented opportunity to work with Local Councils and Planning Authorities to develop new concepts and techniques.

Above all the Master Plan will recognize that planning is not for agriculture, or forestry, or mineral resource exploitation, nor it is necessarily for people exploitation.

Rather it is intended to be a Land Use Plan, a plan which not only recognizes the nature and extent of demands but also the limited capacity of land to accommodate them.

The highest and best use of a parcel is not always reflected in the dollar return or in intensity of use. Quite often the optimum use falls far short of the maximum — but all this needs to be carefully qualified and quantified before specific policies are formulated.

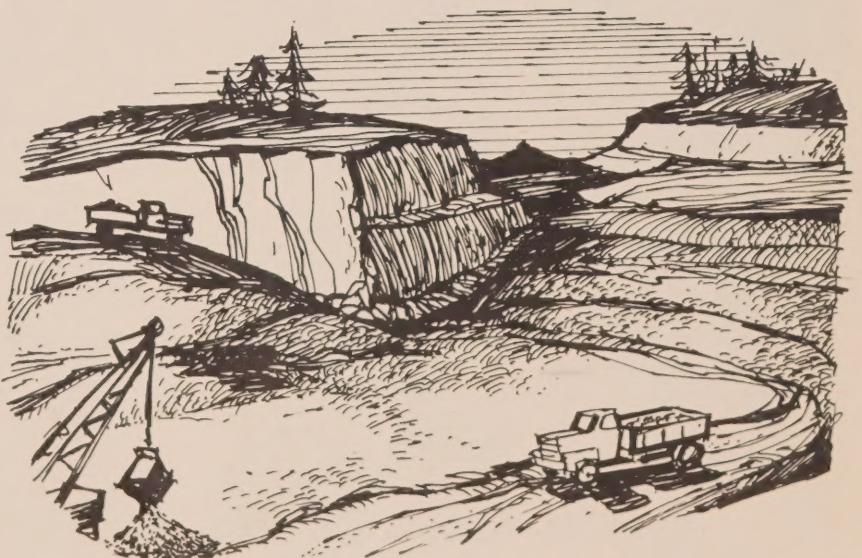
These considerations comprise the factual basis of the Plan. Over and above this however, it is necessary

to arrive at a consensus of social values and objectives and to determine an order of priorities.

Invariably benefits imply a cost and an advantage to one sector is generally offset to some extent by disadvantage in another, so that balance and compromise become a very necessary part of the planning process.

In summary, then the preparation of a Plan for the Niagara Escarpment Planning Area has evolved from a general awareness of the need for a comprehensive approach to land use planning and a particular recognition of the Escarpment as a unique natural feature. In preparing the Plan every effort will be made to allocate uses according to the suitability and capability of the land to accommodate them. While there will be full recognition of the values and priorities of the present generation, long term opportunities and objectives must not be ignored and as many options as possible will be preserved.

If all these objectives can be achieved it will most certainly be a landmark in the continuing development of progressive planning policies for Ontario — and perhaps for Canada.





GEORGE R. McCAGUE
Chairman

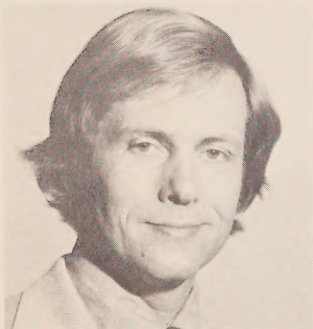
THE NIAGARA

George R. McCague is the Chairman of the Niagara Escarpment Commission. He was appointed to this position on September 18, 1973, by Premier William Davis.

Mr. McCague, a resident of the Town of Alliston, has served the Town since 1960 as Councillor, Deputy Reeve, Reeve, and since 1969 as Mayor until his appointment to the Commission. During 1966, he was Warden of Simcoe County.

His interest in local and regional affairs has led to membership on the Alliston Planning Board (1972-73), the Alliston Public School Board (1967-68), the Nottawasaga Conservation Authority, and the Executive of the Association of Municipalities of Ontario.

In 1967, Mr. McCague was founding Chairman of the Board of Governors of Georgian College, a position he held for seven years.



Robert Bateman



Leo Bruzzese



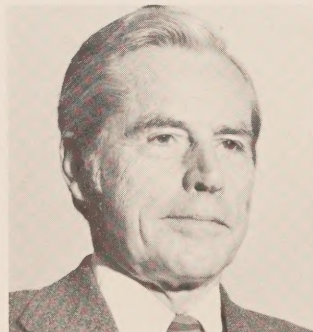
Ivan Buchanan



Anne MacArthur



Robert Keast



Robert McNairn



Robert Bush



Robert Mackey



James Swanborough



Ivor McMullin



John Johnstone



Gary Harron

ESCARPMENT COMMISSION

ROBERT BATEMAN is an artist and art teacher, whose wildlife paintings have been featured on the Federation of Ontario Naturalists' Christmas cards. He is a Director of the Federation, and a resident of Burlington.

LEO BRUZZESE is an Alderman in the Town of Pelham. He is Executive Vice-President of a St. Catharines radio station and a public accountant in Welland.

IVAN BUCHANAN has been a Regional Councillor in Niagara since the inception of Regional Government. He is a former Mayor of the City of St. Catharines. He operates fruit farms and greenhouses.

ANNE MacARTHUR is Mayor of the Town of Milton. A former high school teacher, Mrs. MacArthur was a member of Nassagaweya Township council for nine years and a former Warden of Halton County.

ROBERT KEAST, a former Mayor of Thornbury, is Chairman and founding member of the Beaver Valley Planning Board. He is Chairman of the Grey County - Owen Sound Planning Board and the Grey County Land Division Committee.

ROBERT McNAIRN, former Reeve of Waterdown, has been active in Municipal politics since 1948. He is a former member of the Hamilton-Wentworth Planning Board. He is in the general insurance business in Hamilton.

ROBERT BUSH is Deputy Reeve of Collingwood. He was a member of Collingwood's first Planning Board. Mr. Bush is a former newsman, and has three daughters.

ROBERT MACKEY is a St. Vincent Township Councillor. He is an Ontario Land Surveyor, Chairman of St. Vincent Planning Board and Vice-Chairman of the Grey County - Owen Sound Planning Board.

JAMES SWANBOROUGH is a Queen's Counsel and past Warden of Halton County. He was Chairman of the Burlington and Suburban Area Planning Board in 1964. He is married and has two children.

IVOR McMULLIN is Mayor of the Town of Caledon. He is a life member of the Metropolitan Toronto and Regional Conservation Authority. He is married and has two sons.

JOHN JOHNSTONE, Warden of Bruce County, has been Reeve of St. Edmunds Township since 1968. He is Chairman of the Bruce Peninsula Planning Board and a member of the Bruce County South Planning Board.

GARY HARRON is Reeve of Amabel Township. A former member of Amabel's Planning Board, he is now a member of the Bruce Peninsula Planning Board. Mr. Harron farms in Bruce County.

RAYMOND LOWES is Secretary of the Bruce Trail Association. He is a member and former Director of both the Federation of Ontario Naturalists and the Hamilton Naturalists' Club.

JOHN BOECKH, a resident of Caledon Township, is a Queen's Counsel and former member of both the Caledon Township council and planning board. He is married and has four children.

JOHN BRADSHAW is a writer and broadcaster. He is a member of the Historic Sites Board, Chairman of the Board of Meadowvale Botanic Gardens and a Fellow of the Royal Horticultural Society.

THEODORE PARKER has been a member of the Mono Township Planning Board since 1953, and Secretary of the Committee of Adjustment. He served on Township Council from 1947 to 1956.



Raymond Lowes



John Boeckh



John Bradshaw



Theodore Parker

BILL 129

3RD SESSION, 29TH LEGISLATURE, ONTARIO
22 ELIZABETH II, 1973

An Act to provide for Planning and Development of the Niagara Escarpment and its Vicinity

THE HON. J. WHITE
Treasurer of Ontario and Minister of Economics
and Intergovernmental Affairs

Purpose
of Act

2. The purpose of this Act is to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment.

Objectives

8. In preparing the Niagara Escarpment Plan, the objectives to be sought by the Commission in the Niagara Escarpment Planning Area shall be,

- (a) to protect unique ecologic and historic areas;
- (b) to maintain and enhance the quality and character of natural streams and water supplies;
- (c) to provide adequate opportunities for outdoor recreation;
- (d) to maintain and enhance the open landscape character of the Niagara Escarpment in so far as possible, by such means as compatible farming or forestry and by preserving the natural scenery;
- (e) to ensure that all new development is compatible with the purpose of this Act as expressed in section 2;
- (f) to provide for adequate public access to the Niagara Escarpment; and
- (g) to support municipalities within the Niagara Escarpment Planning Area in their exercise of the planning functions conferred upon them by *The Planning Act*.

Niagara Escarpment Commission

Senior Staff



James W. Gilbert

JAMES W. GILBERT

Director

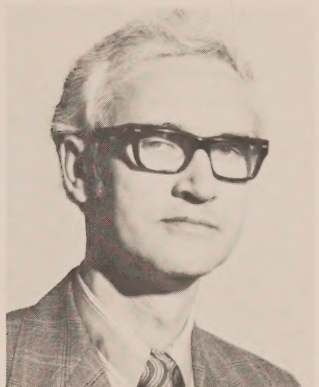
Mr. Gilbert was Director of the Ministry of the Environment's Strategic Planning Branch for 1½ years prior to his appointment as Director, Niagara Escarpment Commission. Since 1970, he has been a senior management scientist with Ontario's Management Board Secretariat.

Mr. Gilbert is a former mining engineer with post graduate degrees in applied science and industrial engineering.

An environmentalist and a systems planner, Mr. Gilbert has lectured on operations research and environmental planning at numerous Canadian Universities.



Cecil A. Louis



Walter W. Gowing



G. Peter Branch



Terrence R. Priddle

CECIL A. LOUIS

Manager, Development Control

Mr. Louis has been with the Government of Ontario as a planner since 1965. He left the Ministry of Treasury, Economics and Intergovernmental Affairs as Assistant Manager of the Official Plans Section, Plans Administration Branch, in February to join the senior staff of the Commission.

A member of the Town Planning Institute of Canada, Mr. Louis is an honours graduate in geography from the University of Toronto.

WALTER W. GOWING

Manager, Information Services

Mr. Gowing comes to the Commission after three years in the position of Executive Director of the Mid-western Ontario Regional Development Council. He is a member of both the Ontario and American Industrial Development Councils.

A former journalist and Regional Government Analyst, Mr. Gowing was also Director of Public Libraries for the former County of Waterloo from 1956 to 1968.

G. PETER BRANCH

Manager, Administration Services

Mr. Branch is an administrator attached from the Ministry of Treasury, Economics and Intergovernmental Affairs to the Commission. He has previously been a policy adviser and co-ordinator of services for the Regional Planning Branch.

A former Director and Member of the Canadian Institute of Management, Mr. Branch has had 15 years' experience with the corporate sector and seven years with Ontario Hydro.

TERENCE R. PRIDDLE

Manager, Plans Preparation

Mr. Priddle, a Member of the Town Planning Institute of Canada has been a planner for 17 years holding positions in Calgary, Toronto and Peterborough. Prior to accepting this present position, he was Assistant Director of Planning and Urban Renewal for the City of Windsor.

Educated as a planner in Britain, Mr. Priddle also majored in botany and zoology at the University of Bristol.

DEVELOPMENT CONTROL

Ontario's Unique Land Use Control System for The Niagara Escarpment

Development Control is by definition a system of land use control. It is not a "freeze" on development.

In June 1973, the Government of Ontario released its policy statement on the Niagara Escarpment and enacted Bill 129, the Niagara Escarpment Planning and Development Act. In both the policy statement and — Bill 129, the Government stated that a Niagara Escarpment Commission would be appointed with the purpose of preparing a master plan for the Niagara Escarpment Planning Area.

The Act also provided for the Minister of Treasury, Economics and Intergovernmental Affairs to have the authority to delegate the administration of a unique system of Development Control to the Niagara Escarpment Commission. This system would be implemented in certain designated sections of the planning area so that the goal and objectives set forth in the Act could be achieved.

Prior to the adoption of Bill 129, the three most important system of land use control in Ontario have been municipal zoning by-laws (Section 35 of The Planning Act), Minister's Restricted Area or "Zoning" Orders (Section 32 of The Planning Act), and Minister's Land Use Regulations (Section 6 of the Parkway Belt Planning and Development Act). After considering these three land use control systems, however, the Government decided that they could not provide the kind of control needed in a large, varied and environmentally sensitive area such as the Niagara Escarpment. Accordingly, a fourth system — Development Control — was selected (Section 22 of The Niagara Escarpment Planning and Development Act). This system is not yet in effect but it will be introduced in the near future.

METHODS OF CONTROL

Zoning by-laws, Minister's Zoning Orders and the Minister's Parkway Belt West Regulations all have a basically similar approach to land use control. Zones are established (e.g. residential, rural, commercial), permitted land uses or development are listed for each zone (e.g. single, family house, farm) as well as certain standards such as minimum lot sizes, minimum lot frontages, and minimum front, rear, and side yards which will apply to the permitted uses.

Once a zoning by-law or Minister's order or Land Use Regulation becomes law, it can only be changed

by a formal amendment which is a time-consuming process. The standards established for each zone are aimed at meeting the average conditions within the zone. Since things like topography, tree cover, drainage and road access may differ widely within a zone, standards aimed at meeting average conditions within the zone must ignore these differences. Accordingly, the standards are applied uniformly whether or not they are appropriate for a particular piece of land within the zone.

In the development control system, however, no zones will be established, and very few detailed standards will be set out in advance. General guidelines for development will be issued instead. Every development proposal will then be judged on its own merits, and if found compatible with the goals, objectives and policies of the guidelines, may be issued a development permit. The permit can be issued subject to whatever standards and conditions as to land use, lot size, building location, tree cover, landscaping, etc. are appropriate for that particular parcel of land. In this system, therefore, there is no need for amendments to pre-established standards. Within the framework of the development guidelines, both the applicant and the development control agency are given greater flexibility to ensure that any development permitted is compatible with its particular environment. Decisions on development applications can be made more quickly, therefore, than in the other land use control systems.

THE ACT — BILL 129

The following is an outline of the content of the sections of Bill 129 dealing with development control. Readers are urged, however, to refer to the relevant section of Bill 129 for the complete legal statements which are summarized on the following page.

Section 22 of Bill 129 authorizes the Minister to make regulations:

- designating areas of development control with the Niagara Escarpment Planning Area;
- providing for the issuance of development permits subject to terms and conditions;
- providing for the exemption of specified types of development from the requirement of obtaining a development permit;

DEVELOPMENT CONTROL

- prescribing the application form for a development permit.

Once development control regulations are in effect, those municipal zoning by-laws and Minister's Orders listed in the regulation will cease to have effect within the designated area. Until development control comes into effect, however, the existing local and/or provincial land-use controls remain in effect.

Section 23 of Bill 129 states that once development control regulations are in effect no building permit or other permit relating to development can be issued unless a development permit is first issued for the particular proposal. "Permits relating to development" include for example:

- a tent and trailer park permit issued by the Ministry of Industry and Tourism;
- a pit and quarry permit issued by the Ministry of Natural Resources;
- a wayside pit permit issued by the Ministry of Transportation and Communication;
- a septic or holding tank system permit issued by a local health unit.

As can be seen from the above list, the legislation applies not only to private individuals, but also to municipalities and government agencies.

Those who undertake development without first obtaining a development permit can be fined up to \$10,000 and can be ordered to demolish any building or structure erected without a permit.

Section 24 enables the Minister to delegate to the Niagara Escarpment Commission, and eventually to counties and regional municipalities within the Niagara Escarpment Planning Area, the authority to issue development permits.

This section also requires that a copy of a decision made by the Commission on any development application must be sent by mail to the Minister and to all assessed owners of land lying within 400 feet of the land affected by the application. This gives anyone receiving a copy of the decision the opportunity to appeal the decision in writing to the Minister with 14 days of the mailing of the decision. If no one appeals, the Commission's decision is final. If, however, an ap-

peal is filed, the Minister will appoint a Hearing Officer to conduct a hearing on the matter. The Minister himself may decide to have a Hearing Officer appointed and a hearing held even if no objections are received. After the hearing, the Officer will submit to the Minister a report which will include a summary of the representations at the hearing and his opinion on the merits of the decision. The Minister then makes his decision on the matter and his decision is final.

It is important to note that in contrast with the zoning by-law system, with development control the Niagara Escarpment Commission is not required to involve the public before making a decision. Public notification comes after a decision has been made. In addition, in a development control hearing, the Hearing Officer does not make decisions, as does the Ontario Municipal Board in a zoning by-law hearing.

NEW PROCESS

The development control process will be as follows:

A The Minister will:

- designate parts of the Niagara Escarpment Planning Area as subject to development control.
- approve development control regulations which will set aside existing local zoning by-laws and Minister's zoning orders
- formally delegate to the Niagara Escarpment Commission the authority to issue development permits, and in effect, administer the development control system
- issue development control guidelines for the benefit of the public. These guidelines will be the framework within which decisions on development applications will be reviewed.

B Within the designated development control area, someone who, for example, wishes to erect a new house must apply directly to the Niagara Escarpment Commission for a development permit before applying to the local building inspector for a building permit. Standard application forms will be made available in local municipal offices and Commissions offices. There will be no fee for making an application.

C The staff of the Commission will review the application in the context of the published development

DEVELOPMENT CONTROL

control guidelines, inspect the site, consult where necessary any agencies or persons, including the local municipality and the applicant, and submit a report with recommendations to the Niagara Escarpment Commission.

- D The Niagara Escarpment Commission will then make a decision on the application and may decide to issue a development permit. There will not be any hearing on the application at this stage. The permit may be subject to terms and conditions regarding:
- siting of the proposed building(s) and structure(s);
 - design of the proposed building(s) and structure(s);
 - exterior facing of the proposed building(s) and structure(s);
 - screening, landscaping, and preservation of existing vegetation;
 - grading or change in elevation or contour of the site;
 - design, location and surfacing of accesses;
 - type of use;
 - removal or restoration of buildings and structures on the site;
 - dates for completion of all or parts of the development and any of the terms and conditions applying to the development and any other terms and conditions which the Commission may set.
- E Notice of the decision will be mailed (regular or registered mail) to all assessed owners of land within 400 feet of the land dealt with in the application.
- F If no one appeals to the Minister within 14 days of the mailing, and the Minister himself is satisfied, the Commission's decision is final and the permit will be issued.
- G The applicant may then obtain his building permit from the local building inspector in the normal way. However, development on the site must be carried out in accordance with any conditions set by the Commission when the development permit was issued.

Within the designated development control area, subdivisions will continue to be handled by the Minister of Housing, and consents by the local Committee of Adjustment or Land Division Committee. However, the Niagara Escarpment Commission will make comments on such applications before decisions are made on them. Of course, the Commission will become directly involved after a consent or plan of subdivision is approved because the lot owners will then want to build; and a development permit must be obtained before a building permit is issued.

PITS AND QUARRIES

In its policy statement of June 4, 1973, the government established a "Pits and Quarries Restrictive Zone" and stated that within that zone no permits for new pits or quarries — including wayside pits — will be issued. If this restrictive zone is included in the development control area, the Commission, in accordance with Government policy, will not issue development permits for new wayside pits, pits and quarries. This would be one exception, therefore, to the statement above that development control is not a "freeze" on development. However, within the development control area not affected by the restrictive zone, the normal review process will be applied to any pit or quarry applications.

DEVELOPMENT CONTROL STAFF

The technical staff will be organized in three teams, with each team including planners, landscape architects and planning technicians. One team will be located in each of the Commission's offices in Georgetown, Clarksburg and Grimsby. By thus decentralizing the development control function from Georgetown, a conveniently localized service can be provided throughout the Escarpment.

It is important that we view the proposed development control system outlined above not a negative land use control system, but as a positive new approach to controlling development within the unique environment of the Niagara Escarpment. The system is aimed at preserving the Escarpment while permitting compatible types of development. It is an approach, however, which, to work well, will need the understanding, co-operation and support of the general public, local municipalities and government agencies.

NIAGARA ESCARPMENT PLANNING AREA

LEGEND

- NIAGARA ESCARPMENT
- PLANNING AREA BOUNDARY
- PARKWAY BELT - WEST BOUNDARY
- MUNICIPAL BOUNDARIES
- DIVIDED HIGHWAY
- HIGHWAYS AND COUNTY ROADS - PAVED
- OTHER ROADS - IMPROVED
- RAILWAYS
- BUILT UP AREAS
- SETTLEMENTS

Scale: 0 2 4 6 miles





Getting the "FACS"

Carl Schenk (centre), senior planner, and "FACS" team members Stephen Hyndman and Sally King.

NIAGARA ESCARPMENT SURVEY

A unique inventory of the assets and liabilities of the Niagara Escarpment from a recreational and environmental viewpoint is being undertaken as a co-operative project of the Niagara Escarpment Commission and General Foods Limited.

"We are particularly pleased with the co-operation of General Foods in the Features and Conditions Survey (FACS)," states George R. McCague, Chairman of the Niagara Escarpment Commission, "because we believe there are many areas where the private and public sectors can work together to maintain the valuable heritage of the Escarpment."

Robert S. Hurlbut, President of General Foods, Limited, Toronto, noted that, over the past few years, General Foods had undertaken a series of summer ecological projects in co-operation with various levels of government. Mr. Hurlbut said: "We hope the project will help focus public attention on the improvement, conservation and public use of a unique and important natural resource."

Commission Director J. W. Gilbert stressed that the survey will involve both positive and negative aesthetic features along the Escarpment. For example, it will catalog not only abandoned pits, derelict buildings, unused dumps and erod-

ed areas but also natural attractions (waterfalls, stands of trees, rock formations, and habitats for flowers, animals and birds), sites of historic interest and so on.

"Such an inventory is an essential pre-requisite for mounting any program for protecting, enhancing or rehabilitating the Escarpment environment," he said.

Five Student Teams Carry Out Project

The FACS project dealing with the Niagara Escarpment involves 10 university students, supervised by senior planning staff of the Niagara Escarpment Commission. The students comprise five teams, with each team covering a designated section of the Niagara Escarpment Planning Area.

The five sections and student teams are as follows:

Queenston to Hamilton — Larry March of Ballinafad, Ontario; student, University of Guelph, resources management. John Van Mossel of Kitchener; student, University of Waterloo, environmental studies.

Hamilton to Georgetown — Karen McCulloch of Brampton; student, University of Waterloo, environmental studies. Sylvia Rockel of Kitchener student, University of Waterloo, resources management.

Georgetown to Primrose — Sally King of Waterloo student, University of Waterloo, urban and regional planning. Stephen Hyndman of Cambridge; student, University of Waterloo, environmental studies.

Primrose to Thornbury — Bruce King of Toronto; student, University of Toronto, regional planning. Ian Veitch of Toronto; student, York University, environmental studies.

Thornbury to Owen Sound — Ted Keast of Thornbury; student, University of Toronto, geography. Ken Buck of Waterloo; student, University of Waterloo, geomorphology and ecology.

A Look at Geomorphological History

HOW THE NIAGARA ESCARPMENT WAS FORMED

The physical landscape of the Niagara Escarpment Planning Area exhibits a variety of landforms. The positions of these landforms, relative to each other contain a record of much of the geologic and climatic history of Southern Ontario over an estimated time period of some 500 million years. This area is a unique one, it is a natural schoolroom in which the historical record of its own formation and evolution is displayed for all to see.

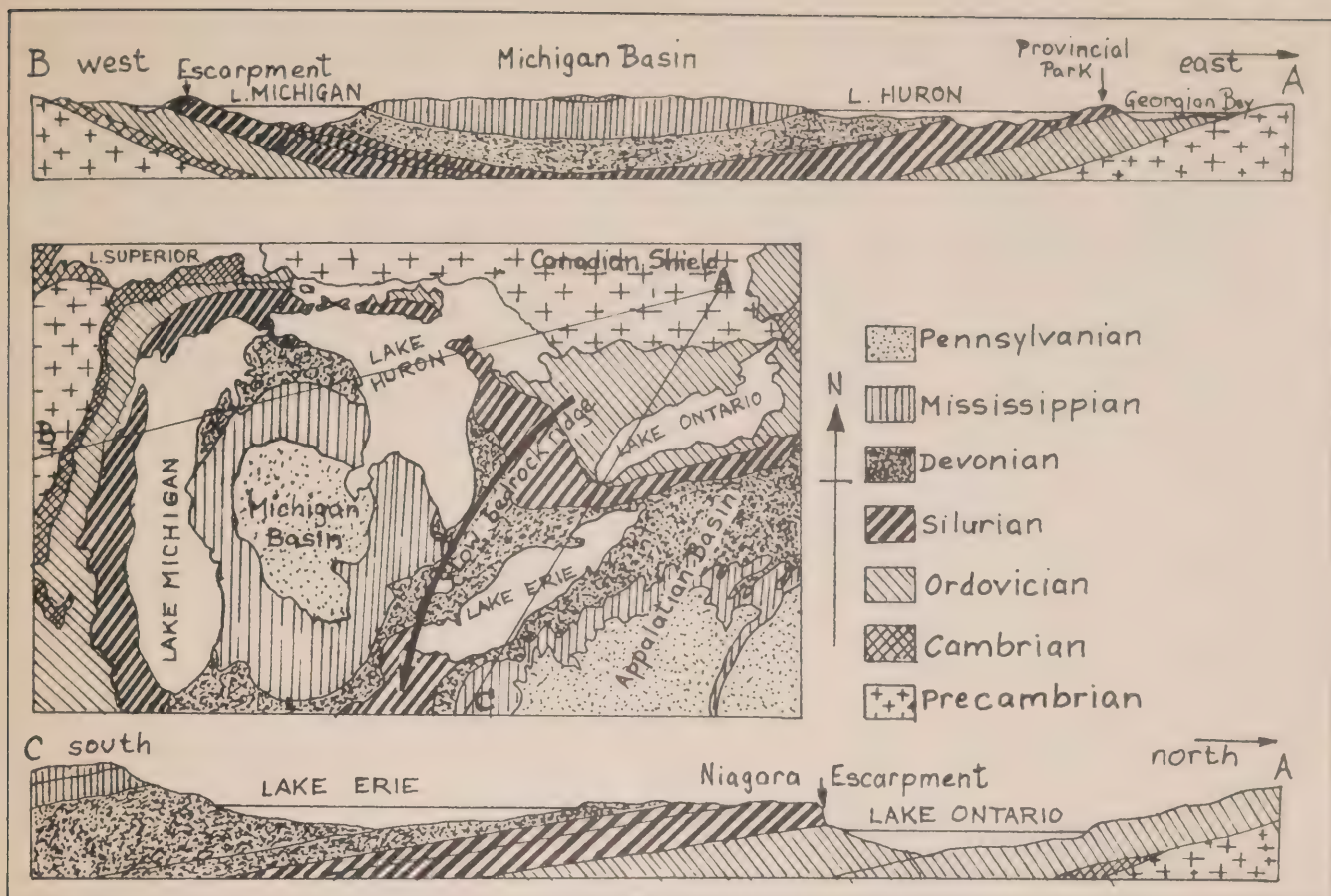
While the most noticeable feature in most of the area is the scarp face itself, many other features exist

which are the result of water erosion, the main process responsible for the formation of the escarpment, and yet other landforms exist which are attributable to other processes, such as glaciation.

The chronology of events as shown on the exposed escarpment face shows beds or strata of rock, these being initially deposited mainly as sediment falling to the bottom of prehistoric seas. A succession of these seas covered parts of Southern Ontario from 400 to 500 million years ago, and each time the land was covered by sea, a layer or layers

of mud, sand and/or calcium materials was laid down on the sea floor.

These sediments have over the centuries undergone changes due to various physical and chemical influences. Pressure due to movements within the earth's crust and to the weight of the overlying materials has compacted the sedimentary layers, squeezing the water out of them while at the same time a cementation process caused the deposition of mineral binding material between the grains of the sediments. The end result of this process is the rock strata which make up much of the



The Niagara Escarpment is part of a gigantic geological formation, shaped rather like a saucer, which stretches through southern Ontario, Michigan and New York states. The escarpment forms the rim of this basin. This map shows the ages and distribution of rocks in the area, and two cross-sections of the structure.

geologic structure of Southern Ontario and which are exposed in the Niagara Escarpment.

The layering is not uniform throughout the length of the escarpment. There are regional variations which represent sediments of different origins laid down at the same time, but under different environmental conditions. For example, sediments which have since developed into sandstone, are the result of materials being transported by rivers from ancient mountains which bordered the prehistoric seas and deposited in delta formations when

those rivers entered the seas. Further into the seas, the materials laid down were of a more calcareous nature and developed into limestone or dolomite. That is why we find that at Queenston near Niagara Falls, the layer of the escarpment exposed at the bottom known as the Queenston shale, is overlain with sandstone while at Owen Sound the Queenston shale is under rock known as Manitouline dolomite.

On top of the sedimentary rock strata sits material which is quite different in origin and nature from the sediments below. This overbur-

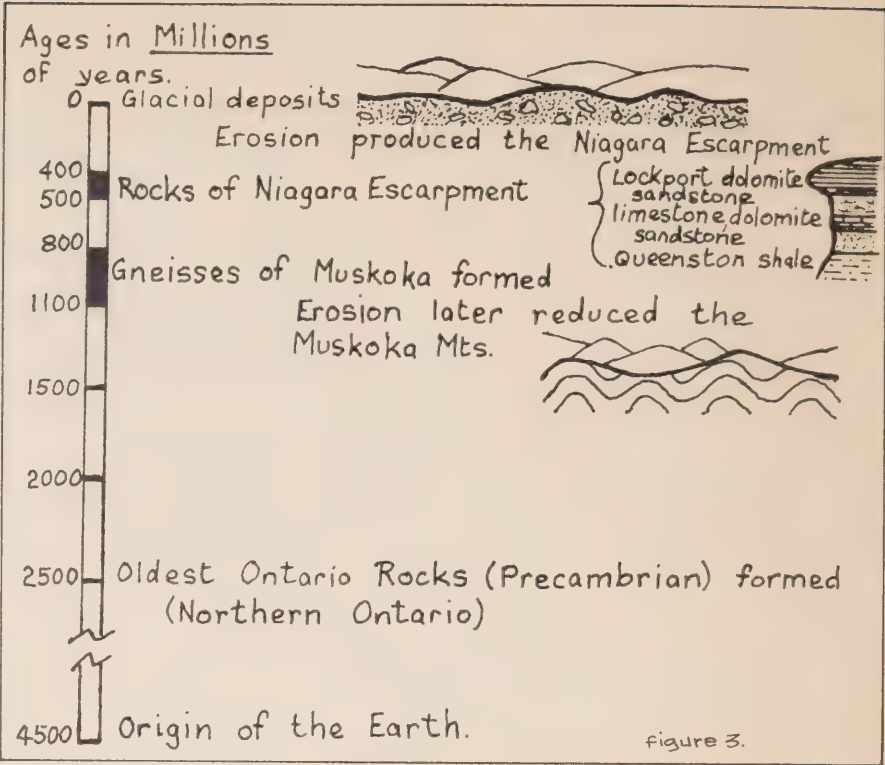
den did not arrive until after the escarpment had been actually shaped. This shaping was done mainly by water erosion and the resultant shape would not have evolved if the bedrock of the area had not been sedimentary in nature.

When the seas receded, a relatively flat limestone plain remained with the underlying rock strata sloping gently to the south-west. A drainage pattern of river and streams developed on this plain and eroded its surface. However, some of the rock layers were more resistant to erosion than others and

where the most resistant layers outcropped at the plain's surface an escarpment formed as the less resistant rock material alongside was quickly eroded away. As downward erosion continued below the thickness of the hard cap rock, lateral erosion also began to take place with the softer underlying shales and sandstones being removed first, resulting in the unsupported overhanging dolomite cap rock then breaking off. This process, called "sapping" is ideally shown in Niagara Falls itself. (See figure 2).

In this way the Niagara Escarpment was formed and its face retreated westwards. The rate of retreat was not uniform throughout the length of the escarpment. This is evidenced by the existence of outliers such as Rattlesnake Point near Milton and by deep valleys cut by rivers into the escarpment. Today one can still see examples of this river erosion in the Beaver Valley and Bighead Valley at Owen Sound, the Dundas Valley near Hamilton, and the Valley of the Twelve Mile Creek at St. Catharines. The same erosional process today, still seems to be working on the escarpment and its environs.

The next major event in the chronology of the area was the coming of the ice sheets. This was in fact a recent process relative to the time of deposition of the escarpment's basic rock materials. See figure 3). While the landforms associated with the work of water are erosional, those as a result of glacial

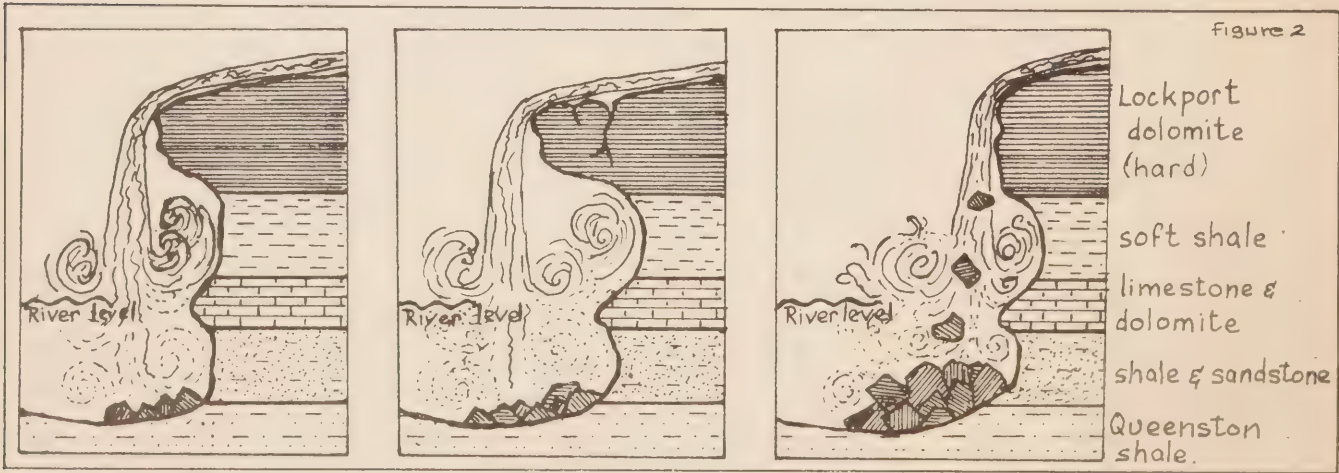


Geological time chart indicating the period of rock formation of the Niagara Escarpment.

iation are due to both erosion and deposition. The glaciers in four advances over Southern Ontario eroded, while in their retreats they deposited materials. Consequently over much of the escarpment area the surface landforms are of glacial origin. This is probably most apparent in the townships of Caledon, Mono and Mulmur (the Caledon to Creemore part of the escarpment area),

where the scarp itself has been in general completely covered by glacial deposits. The countryside in the area is typified by rolling hills and the local relief is more subdued than in other areas where the scarp face is exposed.

Pre-glacial drainage patterns were greatly affected by glacial erosion and deposition. The ice advances



Niagara Falls is an excellent illustration of the sapping process. The hard dolomite is undermined by swirling water.

scoured out river valleys so that instead of being "V" shaped they become "U" shaped. Either advancing or retreating, the ice deposited debris and filled many of these ancient valleys. In some cases the courses of streams were so altered by glaciation that the present day stream is not in its original valley, the Niagara River being a notable example. (See figure 4).

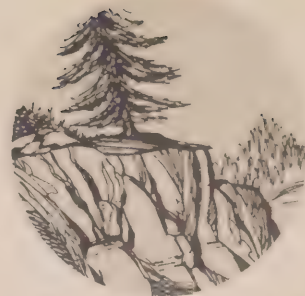
As the glaciers melted and retreated, the water which resulted flowed as rivers into lakes which formed over much of Southern Ontario. These glacial rivers further modified the landforms over or through which they flowed by eroding, transporting and depositing materials such as sand and gravel. These glacial river channels called "spillways" today hold vast quantities of sand and gravel. Evidence

of such a spillway is seen at Mono Centre.

The glacial lakes also played a part in shaping the landscape. Wave action on the lakes modified parts of the escarpment area and indeed the scarp itself and left behind elevated terraces or steps. These were in fact the beaches of the glacial lakes.

Since the glaciers disappeared, erosion of the land by wind and water has continued, but not to the point of obliterating the historic record.

It can be seen in this general overview of its geomorphology that the Niagara Escarpment Area contains an association of landforms which makes it unique. That uniqueness should be recognized and preserved as a legacy for future generations.



CUESTA

Niagara Escarpment
Commission Publication

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CUESTA means a ridge, or belt of hilly land, formed on gently dipping rock strata from the more durable layers, which resist denudation better than weaker layers, and thus left behind as uplands; it has a gentle Dip slope on one side, and a relatively steep Scarp on the other.

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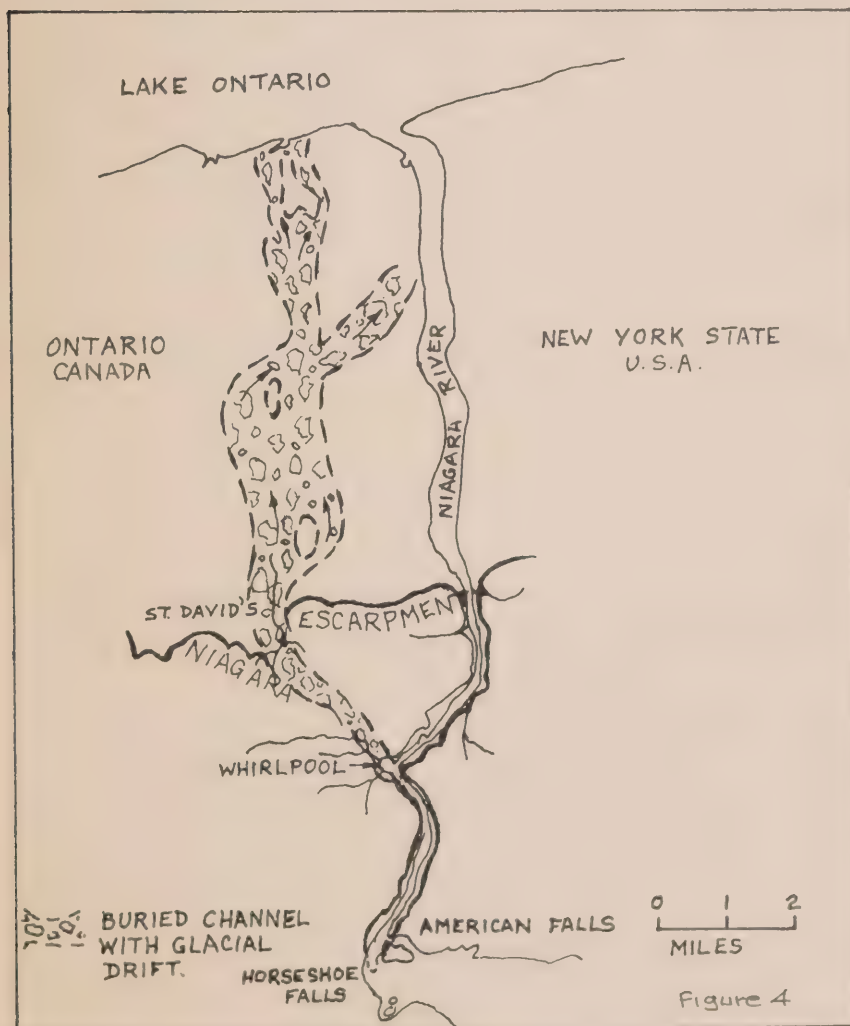
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Walter W. Gowing

Manager, Administration Services
G. Peter Branch



Ontario

Niagara Escarpment
Commission 232 Guelph Street
Georgetown, Ontario
L7G 4B1



The present and former locations of the Niagara River.

People - - - People - - - People - - - People - - - People

COMMENT

NATIONAL INTEREST

Everyone concerned for the future of the Niagara Escarpment must rejoice at the creation of the Niagara Escarpment Commission as a serious effort to protect this unique cuesta formation.

Perhaps the mission of the new agency will be clearer if we remember that the Niagara Escarpment would in most jurisdictions of the world be already regarded as a National Park. No doubt one of the reasons why it has not developed as such in Canada is the very limited category of classifications open to National Parks in Canada and another is the understandable reluctance of the Province to lose valuable land resources, though recent National Parks in Quebec have shown that instead of having land transferred to Federal ownership, it can be taken on leasehold.

The Niagara Escarpment Commission will undoubtedly face many grave difficulties in seeking to exercise "development control". This is mainly because of the absence of an over-all strategic planning concept for the escarpment. This is a task of great urgency to give a policy framework for the difficult decisions of daily operations.

While we must salute areas such as the Bruce, and individual segments such as the Dundas, Ancaster and Saltfleet sections of the former Hamilton-Wentworth Planning Area, for setting up clear-cut policies, it is evident that in the rest of Ontario affected by the escarpment, there are some serious policy loopholes, especially in the matter of mineral working and urban development.

There is also evidently a lack of co-ordination among the various public agencies and utilities and Ministries affecting the escarpment. We sense that the demise of the large-scale regional planning concepts which were suggested as successors to the "Toronto-Centred Region" concept, has left a gap here which needs to be filled.

It is clear that the policies in the "Toronto-Centred Region" concept are too vague and the Act too imprecise to be of much use to the Commission.

It may well be that the Commission's permit control is an unusually difficult one precisely because of these gaps.

There is however, another possible explanation for the difficulties which will beset the Niagara Escarpment Commission in its permit approvals, and that is the whole issue that all Ontario planning is in fact confis-
catory. We have never faced the issue that to change the use of land from a free market situation to one of

development control involves loss of rights and changes in tenure. Maybe the whole pressure on the escarpment could be changed by making, within the defined area, arrangements for the public to purchase not the land itself, but the development rights. This is a practical concept which could be effectuated by judicial ruling on disputed "future" values and in practice could be settled by annuities or lump-sum payments, tax credits or bond issues.

Unless we take some such measures, many landowners will be forced, simply to protect themselves, to dispute sensible conservation and preservation concepts.

Unlike many people, I have a very high opinion of the landowners on the escarpment, for they very unselfishly let the Bruce Trail succeed by kind permission of private owners.

It seems to me that, as with so many vexing public problems, the answers lie in better public policies.

Perhaps the Commission should initiate research in these areas, if it is to be able to fulfill its long-term mission.

Good fortune to the Commission and to "Cuesta" in this valuable work.

Professor Norman Pearson
223 Commissioners Rd. East
London, Ontario
N6C 2S9

REQUIRES PROTECTION

Congratulations on your publication.

The Sierra Club and other conservation groups in Ontario passionately believe in the protection of the Niagara Escarpment and are anxious to serve in any way they can to assist in this process.

Open space is vitally important to southern Ontario. In Toronto, the main reason that citizens have even a little parkland is because of the existence of the ravines. Years ago, the ravines were too difficult to build in and so they were left alone. Now, they are protected. So, too, it was the case with some sections of the Escarpment. The Escarpment must now be protected so as to ensure that strip mining, housing developments, and transmission corridors do not ruin one of our most precious and scenic resources.

Philip B. Lind
Chairman
SIERRA CLUB OF ONTARIO

From the Chairman's Pen



It is my privilege to serve as Chairman of the Niagara Escarpment Commission. I sincerely subscribe to the fundamental goal set for the Commission by the Legislature of Ontario through the passage of The Niagara Escarpment and Development Act, namely "to maintain the Niagara Escarpment as a continuous natural environment while seeking to accommodate demands compatible with that environment".

In an effort to bring about a better understanding of the role of the Commission and the progress it makes, we are introducing this first edition of the magazine "Cuesta". The Commission and its staff will, from time to time, undertake to produce new editions as one of a number of methods to be used in keeping the citizens of Ontario well informed on the planning of the Niagara Escarpment area.

The Niagara Escarpment Commission consists of 17 members: along with myself as Chairman, eight members representing the public at large have been directly appointed by the Province and eight members representing local government at the county or regional municipality level have been appointed to the Commission.

Our staff is headed by a Director under whom four sections have been established: Plans Preparation, Development Control, Information Services and Administration Services. This staff structure provides for a co-ordinated program of services to facilitate the function of the Commission.

Although this Commission has been given the responsibility of preparing a Master Plan within a three-year period, it has moved quickly and directly into the field of recommending that— numerous preservative measures be undertaken in the 2,000 square mile Niagara Escarpment Planning Area. These measures are in accordance with the goals and objectives set out in Bill 129, the Act under which the Commission was formed.

Development Control will be a new form of regulating development and physical land changes within certain specified areas of the overall planning area.

In preserving essential lands along the Escarpment, the Government has an acquisition program that is being carried out on recommendation of the Commission. However, it should be noted, that the policy of the Government is not to acquire vast tracts of land in the Planning Area, but a limited amount of land leaving the remainder as private lands under planning controls.

There are approximately 1.3 million acres of land in the Planning Area of which the Government has purchased about 20,000 acres since January, 1968.

The Commission also recognizes the impact of pits and quarries on the escarpment and will place special emphasis on studying the matter.

The Government of Ontario and the Niagara Escarpment Commission in consultation with the Bruce Trail Association will determine and secure the best route for the trail. The Niagara Escarpment Master Plan will recognize the Bruce Trail for the use of walking, snow-shoeing and cross-country skiing.

All the residents of Ontario, urban and rural alike, have an interest in the preservation of the Escarpment. This Commission clearly identifies itself by supporting the preservation of this unique area as a wilderness and recreation resource and also by accommodating other land uses that are compatible with such preservation.

GEORGE R. McCAGUE

Chairman

Niagara Escarpment Commission

HIKING THE



FREEDOM ON FOOT

"It's a damn' good way to escape the crazy crowded cities we live in," exclaimed Rod Markin. A machinist in Toronto, he was replying to the question — "Why hike The Bruce Trail?"

He calls an outing on the Trail — "freedom". Free from man-made noise and traffic pressures; neighbours' houses only an arm's length away; miles and miles of asphalt. It's an opportunity to escape.

Here is one man who has found his sanctuary along a winding path that stretches 433 miles from the foot of Brock's Monument at Queenston Heights, just five miles down stream from Niagara Falls, to Tobermory, a Hamlet at the tip of The Bruce Peninsula.

It is estimated that more than 70,000 persons will hike sections of The Bruce Trail this year. These people come from all parts of the

Province of Ontario, other provinces and many foreign countries.

Those who have made the entire distance from end to end include Fred Shonbeck of St. Jean, Quebec, Donald Thieme of Annapolis, Maryland, Werner Mier, Portland, Oregon and Robert Gaizauskas of Ottawa.

Among the near 100 known hikers to have completed The Trail is

BRUCE TRAIL

Mrs. Ida Sainsbury of Weston. Mrs. Sainsbury is one of the few people to date who has covered the entire distance twice.

"Once again it has been delight to walk the Trail" writes Mrs. Sainsbury on a page of her diary in 1970, "constantly stopping to listen to the birds, admire the flowers, enjoying the views and wondering how to avoid those curious creatures, the cows."

The Bruce Trail with its rocky paths, dense forests, picturesque lookouts, intrigues the hiker. Rare flowers, ferns, rocks and animal life bring nature alive at one's very fingertips. Yet, shooting's allowed on the Trail, but only with a camera. A world of photographs capture memories of unforgettable experiences along the trail.

Age is no barrier to those who want to enjoy Ontario's wonderland of hiking trails.

Charles H. A. Stager of Cambridge, in 1971, along with a long-time friend, W. George Woods, completed the entire route of The Bruce Trail. They had started out on this adventure in 1969. They made 42 expeditions into the wilderness lands that the Trail follows. Charles Stager, born before the turn of the century in 1898, was a young 73 years old when he conquered the Trail. George Woods was but seven years his junior.

In reminiscing about his adventures on The Trail, Charles Stager expressed his appreciation to the co-operative people who own much of the land the Trail crosses. He says it comes from the "goodness of their heart" that people in the Grimsby area, The Beaver Valley and north onto the Peninsula, as well as many other locations, provide free access to their land.

Warden of 1942, in the former County of Waterloo, Mr. Stager also



served that County for 23 years as Clerk-Treasurer. Asked for advice on hiking, he replied: "Try and do it, but it's not wise to go alone."

He described an incident while hiking The Trail when he fell and severely cut open his forehead. His partner had to help get him to a

hospital that was several miles away. "The Bruce Trail", exclaims Charles Stager, "it's a challenge".

And today more than ever before, you will find people of all ages tramping the long, winding path that leads to beauty and adventure. It's a favourite outing for school child-



ren. Teachers have an opportunity to take the students into the giant classroom that nature provides.

The Bruce Trail Association and its 7,500 members is evidence of the success of drawing people together with like interests of enjoying the unique features along The Niagara Escarpment.

One man is credited with bringing a dream to reality. Ray Lowes had a love for the outdoors and a genuine desire to hike throughout Ontario's wilderness. In 1960 he convinced The Federation of Ontario Naturalists to form a Bruce Trail Committee. Lowes was made Secretary.

In 1963, The Bruce Trail Association was formed and has continued to grow steadily each year.

Ray Lowes, an employee of the Steel Company of Canada for over 30 years, has become the full-time Secretary of The Bruce Trail Association. As a member of the Steel Company's public relations staff, Lowes spends all his time promoting the efforts of The Association.

The Association has members from all walks of life including doctors, lawyers, plumbers, truck drivers, nurses, teachers, scout troops, students, and whole families — mother, father and children.

The excitement of change is always present when hiking The Bruce Trail. The hiker may view the fruit bearing lands of the Niagara Peninsula or sheep and cattle lands of the Bruce Peninsula. And in between there are productive lands of mixed farming that produces interesting and varied highlights along the Trail.

One can view the apple orchards of the lower Beaver Valley on your hike to The Blue Mountain Area where the Escarpment reaches its highest elevation, some 1,775 feet above sea level.

There is the Old Smokey Ski Club, the Talisman Ski Resort and dozens of other excellent ski resorts along the Escarpment. Thousands of people enjoy the pleasure of the ski slopes provided by the Escarpment.

This unique land mass formed some 400 million years ago provides the people of today with a fascinating opportunity of exploring it while hiking The Bruce Trail.





Photos by Peter VanderWel



ESCARPMENT HIGHLIGHTS



Adventure In Exploring The Niagara Escarpment

Elementary school children and their teachers find beauty and adventure in exploring the Niagara Escarpment.

A day in the undisturbed "wilds of Ontario" brings to life the realization of the treasured heritage this Province has in its rich mosaic of forests, cliffs, hills, waterfalls, scenic viewpoints and unusual rock formations.

Nature, unique in all its forms of plant and animal life, nurtured in land formations created over 400 million years ago, has provided us with 2000 square miles of extraordinary country we call the Niagara Escarpment Planning Area.

A new approach to the enhancement and preservation of a significant area of the Province of Ontario is being undertaken by the Niagara Escarpment Commission.

A Master Plan is being developed by the Niagara Escarpment Commission so that the distinctive characteristics of the Escarpment lands will be protected from undesirable pressures. The basic goal set is "to maintain the Niagara Escarpment as a continuous natural environment while seeking to accommodate demands compatible with that environment."



Photos by James Edward